СЕЛЬСКОХОЗЯЙСТВЕННЫЕ НАУКИ

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THE SUBSTANTIATION OF WAYS OF REDUCING THE DEGREE OF SALINIZATION AND INCREASE SOIL FERTILITY IN THE LOWER REACHES OF THE AMU DARYA

Annotation. The land resources of General economic importance include not only fertile soils, which are actively used in agriculture, but also soils containing easily soluble mineral salts harmful to plants and therefore unsuitable for growing useful crops. Saline soils make up about 20 % of all developed lands in the world.

Keywords: Land resources, agriculture, saline soils, land reclamation, biomelirant plants, irrigation, water loss, tillage, cultivators

Introduction

The Republic of Uzbekistan is located in the center of the Aral sea based and belongs to the zone with arid climate by natural and climatic characteristics. The main factors of desertification and salinization of agricultural land are: wind and water erosion, secondary salinization, as well as, improper selection of irrigation. For the development of saline lands can be applied plant - biomeliorants that can generate high yields. It is also necessary to properly organize the operation of the irrigated area, that is, to choose the optimal irrigation regime and, first of all, irrigation norms that do not allow waterlogging, combating water losses in canals and planned water use - the most important measures to prevent soil salinization. Of great importance are measures to reduce the evaporation of moisture from the soil: the creation of soil structure, thickened and re-sown, correct and timely tillage, the layout of the field surface.

Materials and methods

The process of salt accumulation in soils can occur in a natural way (weathering of minerals or the flow of substances from the atmosphere), and artificial (reclamation work associated with irrigation or drainage of land).

The aim of the research is the substantiation and development of technology of cultivation of plant - biomeliorants as culture - reclaiming salinized irrigated lands of semi-arid areas, which provides reclamation effect and increase the fertility of the soil.

To achieve this goal it was necessary to solve the following tasks:

• justify the need for biomeliorative techniques to prevent degradation;

• determine the role of crop and root crop residues in crop rotation as a source of organic matter in the soil;

• to study the influence of organic matter entering the soil with post-harvest residues on its agrophysical and agrochemical properties;

• investigate the role of perennial grasses as phytomeliorants;

• identify the relationship of organic matter

Table 1

STRUCTURE OF LAND RESOURCES IN THE REPUBLIC OF UZBEKISTAN, THOUSAND HA

Region	Gross area	Potentially suitable for irrigation			Pastures, hayfields
		Whole	irrigated area		
			Gross	Net	
Andijan	430,3	372,5	357,3	272,1	57,8
Namangan	717,5	415,9	37,1	277,8	301,8
Fergana	715,3	556,3	508,2	356,9	159,0
Sirdaria	427,6	359,6	357,9	293,	68,0
Dzizak	2117,8	9510,4	413,0	300,5	1166,4
Tashkent	1513,2	590,5	470,9	390,9	922,7
Samarkand	1677,4	115,5	529,0	373,0	561,9
Bukhara	4193,7	978,0	454,3	273,6	3215,7
Navoi	10937,4	1416,9	152,0	124,7	9520,5
Surkhandaria	2009,9	763,6	438,4	328,2	1246,3
Kashkhandaria	2856,8	1840,7	775,3	504,6	1016,1
Xorezm	681,6	335,8	288,4	275,3	345,8
Karakalpakstan	16100,6	2100,5	708,8	500,9	14000,1
Tashkent	32,2			5,4	
Total	44410,3	11797,2	5856,7	4277,6	32613,1

In Uzbekistan, saline lands account for 50.7 % (2170.7 thousand hectares) of irrigation area, slightly saline - 31.4 %, medium saline -15.5 %, strongly saline - 3.8 %. The area of pastures is 20.8 million hectares, of which 18.7 million hectares are flooded, 1.6 million hectares are subject to degression, more than 15.1 million hectares of land are not used in farms (slopes, talus, landfills, Sands, landfills, etc.). From 20 to 40 % of irrigated land is subject to deflation, 2.8 million hectares of pastures need watering, more than 160 thousand hectares are subject to man-made impact. Of the total number of mudflows occurring in Central Asia, 75 % is accounted for by Uzbekistan

Salinization is a serious problem in Uzbekistan's agriculture. The latter occurs due to the evaporation of groundwater containing salt, which due to the capillary effect come to the earth's surface. The output of groundwater occurs as a result of excessive irrigation, insufficient alignment of fields, reducing the efficiency of the drainage system.

From crops these properties are alfalfa, barley, millet, sorghum, Guinea corn, millet, Sudan grass, sunflowers, wheat, beets, licorice, sweet sorghum, maize varieties with a strong root system and tall aerial parts. And if in the first joint sowing the share of alfalfa should not exceed 30 %, then in each next crop rotation it will gradually increase by 20 % until it reaches 100 %. Thus it will be possible to obtain areas fully occupied by forage crops. Taking into account the reclamation properties of these plants, it will be possible to achieve complete soil desalination within 4 – 5 years (with average salinity areas) or 6 – 7 years (with a strong degree of salinity) [1].

Conclusion

Thus, the restoration of fertility of saline areas with the help of biomeliorants is a very effective and promising way to remove easily soluble mineral salts from the soil, unfavorable for cultivated plants. This technology makes it possible to increase the productivity of agricultural land through the use of new territories and to obtain higher yields when growing products on recultivated lands.

At the same time, it is necessary to analyze the impact of complex melioration on improving the fertility of secondary saline lands of arid territories, the role of phytomeliorants in improving the agrochemical and agrophysical properties of soils; selection of crops-saline irrigated lands; study the impact of salinization on yield and studied the water consumption of plants - biomeliorants in the phases of development with and without feeding groundwater.

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GEOINFORMATION TECHNOLOGIES FOR HYDROMODULAR ZONING OF IRRIGATED LANDS OF THE KHOREZM REGION AND REGIMES OF COTTON IRRIGATION.

Annotation: Changes in the hydromodul zoning of the irrigated lands of the Khorezm oasis in the case of water shortages, the distribution of irrigated lands by the hydromodul regions, and the determination of scientifically justified irrigation practices for the major hydromodul regions in the Khorezm region.

Keywords. Hydromodul zoning, scientifically justified irrigation systems of cotton, irrigated land; irrigation period of cotton; agricultural engineering; water shortages; water-saving technologies; irrigation standards; seasonal irrigation rates; limited field moisture capacity, water and soil mineralization; irrigation equipment; mineral fertilizers; vegetation periods.

The issue of global warming becomes a subject not only due to the increase in the average annual temperature of the earth, but also due to changes in the whole global technological system, the rise of the oceans of the earth, the melting of ice and permanent glaciers, the increase in rainfall, the congestion of river flows and climate instabilityand other changes.

Due to global warming, melting glaciers in mountainous regions, the decline will cause a 25-30% decrease in the flow of rivers, especially a part of